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Tractor Test and Power Museum, The Lester F. Larsen

January 1948

# Test 403: Massey-Harris Model 22 RT

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Copy of Report of Official Tractor Test No. 403

Dates of test: October 15 to October 21, 1948
Name and model of tractor: MASSEY-HARRIS 22 R T
Manufacturer: THE MASSEY-HARRIS COMPANY, Racine, Wisconsin
Manufacturer's rating: None

HORSEPOWER SUMMARY

| | | DRAWBAR | BELT |
|---|---|---|---|
| 1. | Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.) | 23.91 | 31.59 |
| 2. | Observed maximum horsepower (tests F & B) | 22.87 | 31.05 |
| 3. | Seventy-five percent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly ASAE and SAE ratings.) | 17.93 | 26.85 |

REMARKS

Tractor was tested without hydraulic lift pump which is listed among items as special equipment.

No repairs or adjustments.

FUEL, OIL and TIME

| | | | | | |
|---|---|---|---|---|---|
| Fuel | Gasoline | Octane | 74* | Weight per gallon | 6.110 |
| Oil | SAE 10 | To motor | 1.129 | Drained from motor | 0.947 |

Total time motor was operated 46 1/2 hours

* Octane rating taken from oil company's typical inspection data.

We, the undersigned, certify that this is a true and correct report of official tractor test No. 403.

L. F. Larsen
Engineer in Charge

C. W. Smith

L. W. Hurlbut

F. D. Yung
Board of Tractor Test Engineers

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All results shown on pages 2 and 3 of this report were determined from observed data and without allowances, additions, or deductions. Tests B and F were made with carburetor set for 100% maximum belt horsepower and data from these tests were used in determining the horsepower to be developed in tests D and H, respectively. Tests C, D, E, G, H, J, and K were made with an operating setting of the carburetor (selected by the manufacturer) of 95.7% of maximum belt horsepower.

## B E L T  H O R S E P O W E R  T E S T S

| Horse-power | Crank shaft speed rpm | Fuel Consumption | | | Water used | Temperature | | Barometer |
|---|---|---|---|---|---|---|---|---|
| | | gal per hr | hp-hr per gal | lb per hp-hr | gal per hr | Cooling med °F | Air °F | Inches of Mercury |
| TEST B - 100% MAXIMUM LOAD -- TWO HOURS | | | | | | | | |
| 31.05 | 1799 | 2.817 | 11.02 | 0.534 | 0.00 | 176 | 51 | 29.157 |
| TEST C - OPERATING MAXIMUM LOAD - ONE HOUR | | | | | | | | |
| 29.94 | 1802 | 2.570 | 11.65 | 0.524 | 0.00 | 174 | 46 | 29.250 |
| *TEST D - ONE HOUR | | | | | | | | |
| 26.92 | 1802 | 2.375 | 11.33 | 0.539 | 0.00 | 172 | 44 | 29.260 |
| TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average) | | | | | | | | |
| 27.01 | 1805 | 2.381 | 11.34 | 0.539 | - -- | 169 | 44 | -- --- |
| 1.63 | 2001 | 1.021 | 1.60 | 3.828 | - -- | 143 | 41 | -- --- |
| 14.59 | 1941 | 1.699 | 8.59 | 0.711 | - -- | 169 | 42 | -- --- |
| 28.54 | 1694 | 2.445 | 11.67 | 0.523 | - -- | 174 | 41 | -- --- |
| 7.36 | 1957 | 1.296 | 5.68 | 1.076 | - -- | 162 | 48 | -- --- |
| 21.30 | 1897 | 2.092 | 10.18 | 0.600 | ---- | 170 | 47 | -- --- |
| 16.74 | 1882 | 1.822 | 9.19 | 0.665 | 0.00 | 164 | 44 | 29.270 |

*Formerly called RATED LOAD, see HORSEPOWER SUMMARY 3, page 1.

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# DRAWBAR HORSEPOWER TESTS

| Horse-power | Draw bar pull lb | Speed mph | Crank shaft speed rpm | Slip on drive wheels % | Fuel Consumption: gal per hr | Fuel Consumption: hp-hr per gal | Fuel Consumption: lb per hp-hr | Water used gal per hr | Temperature: Cooling mod °F | Temperature: Air °F | Barometer Inches of Mercury |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rear wheels, tires and added weight used in Tests F, G, and H; Pressed Steel wheels; 10-28, 4 ply tires and 797 lb added weight per wheel. | | | | | | | | | | | |
| TEST F - 100% MAXIMUM LOAD - 3rd GEAR | | | | | | | | | | | |
| 22.87 | 1962 | 4.37 | 1507 | 5.94 | ------Not Recorded------ | | | | 185 | 72 | 28.950 |
| TEST G - OPERATING MAXIMUM LOAD | | | | | | | | | | | |
| 15.35 | 2803 | 2.05 | 1495 | 16.00 | ------Not Recorded------ | | | | 177 | 72 | 28.941 |
| 21.27 | 2471 | 3.23 | 1503 | 8.42 | ------Not Recorded------ | | | | 179 | 74 | 28.950 |
| 21.53 | 1839 | 4.39 | 1504 | 5.33 | ------Not Recorded------ | | | | 180 | 73 | 28.950 |
| 19.39 | 565 | 12.87 | 1506 | 1.53 | ------Not Recorded------ | | | | 177 | 69 | 28.941 |
| *TEST H - TEN HOURS - 3rd GEAR | | | | | | | | | | | |
| 17.95 | 1530 | 4.40 | 1500 | 4.90 | 1.812 | 9.91 | 0.617 | 0.00 | 177 | 59 | 29.079 |
| TEST J - OPERATING MAXIMUM LOAD - 3rd GEAR | | | | | | | | | | | |
| 16.69 | 1555 | 4.02 | 1497 | 13.95 | ------Not Recorded------ | | | | 178 | 77 | 28.905 |
| TEST K - OPERATING MAXIMUM LOAD - 3rd GEAR | | | | | | | | | | | |
| Lightest weight wheels and smallest tires suggested by manufacturer. All added weight removed from tractor (liquid, cast iron, or any other added forms.) | | | | | | | | | | | |
| 17.23 | 1558 | 4.15 | 1507 | 15.92 | ------Not Recorded------ | | | | 181 | 77 | 28.900 |

* Formerly called RATED LOAD, see POWER SUMMARY 3, page 1.

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## TIRES, WHEELS, and WEIGHT

| | | Tests F, G & H | Test J | Test K |
|---|---|---|---|---|
| Rear Wheel: (each) | Type | Pressed Steel | Pressed Steel | Pressed Steel |
| | Liquid Ballast | 322 lb | None | None |
| | Added Cast Iron | 475 lb | None | None |
| Rear Tires: | No. Size & Ply | 2 10-28 4 ply | 2 10-28 4 ply | 2 9-32 4 ply |
| | Type of Tread | Champion Ground Grip | Champion Ground Grip | Champion Ground Grip |
| | Make | Firestone | Firestone | Firestone |
| | Air Pressure | 14 lb | 12 lb | 12 lb |
| Front Wheel: (each) | Type | Pressed Steel | Pressed Steel | Pressed Steel |
| | Liquid Ballast | None | None | None |
| | Added Cast Iron | None | None | None |
| Front Tires: | No. Size & Ply | 2 4.00-15 4 ply | 2 4.00-15 4 ply | 2 4.00-15 4 ply |
| | Type of Tread | Guide Grip | Guide Grip | Guide Grip |
| | Make | Firestone | Firestone | Firestone |
| | Air Pressure | 28 lb | 28 lb | 28 lb |
| Height of Drawbar | | 14 inches | 13 1/2 inches | 16 inches |
| Static Weight: | Rear End | 3430 lb | 1836 lb | 1869 lb |
| | Front End | 884 lb | 884 lb | 884 lb |
| Total Weight as tested (with Operator) | | 4489 lb | 2895 lb | 2928 lb |

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SPECIFICATIONS

Type Tricycle Serial No. 22GR1019 Drive Enclosed Gear

Tread width: Rear 40 in. to 88 in. Front 7 ½ and 14¼ in.

Advertised speeds, mph : First 2.45 Second 3.51 Third 4.62 Fourth 13.02

Reverse 2.45

Belt pulley: Diam. 9½ in. Face 6 ¼ in. RPM 1800 Belt Speed 3044 fpm

Clutch: Make Borg & Beck Type: Dry Disc Operated by Foot pedal

Seat: Pressed Steel

Brakes: Make Auto Specialties Location Rear Axle Gear reduction (brake drum to rear wheel) 1 to 1 Operated by Foot pedal Locked by Latches

Equalization None

Engine: Make Continental Red Seal Serial No.MFC140G14754 Type 4 cylinder vertical Head L Mounting Lengthwise Lubrication Pressure Bore and stroke 3 3/16 in x 4 3/8 in. Rated rpm 1800 on Belt
1500 on Drawbar

Port diameter valves: Inlet 1 23/64 in Exhaust 1 1/16 in.

Starter: Make Auto-Lite Distributor & Coil: Make Auto-Lite

Battery Exido Generator: Make Auto-Lite Carburetor: Make Marvel-Schebler Model TSX34 Size 7/8" Governor: Make Novi Type Variable speed centrifugal Air Cleaner: Make Donaldson Type Oil washed wire screen

Oil Filter: Make Purolator Type Replaceable treated paper element

Cooling medium temperature control: Thermostat